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U.S. Department of the Interior • U.S. Geological Survey

# MINERAL INDUSTRY SURVEYS

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Gordon P. Eaton, Director

Reston, VA 20192

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For information, contact:

Robert G. Reese Jr., Vanadium Specialist

Telephone: (703) 648-4981, Fax: (703) 648-7757

E-mail: [rreese@usgs.gov](mailto:rreese@usgs.gov)

Eraina C. Dixon (Data), (703) 648-7959

MINES-DATA: (703) 648-7799

MINES FaxBack: (703) 648-4999

Internet: <http://minerals.er.usgs.gov/minerals>

## VANADIUM IN MAY 1997

The total reported consumption of vanadium in May increased 3% from that reported for April.

U.S. ferrovanadium prices during May ranged from \$8.75 to \$9.00 per pound vanadium content compared with \$8.80 to \$9.20 in April. The range for European ferrovanadium prices

was \$18.30 to \$19.00 per kilogram vanadium content in May. In April European ferrovanadium prices ranged from \$18.40 to \$19.50. For vanadium pentoxide, the May range was \$3.73 to \$3.83, while in April it was \$3.75 to \$4.05.



TABLE 1  
U.S. CONSUMPTION AND CONSUMER STOCKS OF VANADIUM, BY FORM 1/

(Kilograms, contained vanadium)

	1996 p/		1997			
	January - December		April		May	
	Consumption	Stocks	Consumption	Stocks	Consumption	Stocks
Ferrovandium 2/	4,090,000	311,000	357,000 r/	368,000 r/	361,000	366,000
Oxide	13,400	6,610	1,120	6,780	1,120	6,780
Vanadium-aluminum alloy	W	11,300	W	9,660	W	11,500
Vanadium chemicals 3/	W	W	W	W	W	W
Other 4/	396,000	5,460	39,700	5,460	45,600	5,470
Total	4,500,000	334,000	398,000 r/	390,000 r/	408,000	389,000

p/ Preliminary. r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Other."

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes other vanadium-iron-carbon alloys as well as vanadium oxides added directly to steel.

3/ Includes vanadates, chlorides and other specialty chemicals.

4/ Includes other vanadium alloys, vanadium metal, and items indicated by symbol "W."

TABLE 2  
U.S. CONSUMPTION OF VANADIUM, BY END USE 1/

(Kilograms, contained vanadium)

	1996 p/ January - December	1997		
		April	May	Year to date
Steel:				
Carbon	1,640,000	146,000	119,000	662,000
High-strength low-alloy	933,000	76,800	84,500	417,000
Stainless and heat-resisting	21,600	1,610	1,610	8,600
Full alloy	1,050,000	81,200	90,900	399,000
Tool	409,000	W	W	236,000
Unspecified	--	--	--	--
Total steel	4,060,000	306,000	296,000	1,720,000
Cast irons	W	W	W	W
Superalloys	17,300	1,180	1,550	7,270
Alloys (excluding steels and superalloys):				
Cutting and wear-resistant materials	245	20	20	102
Welding and alloy hard-facing rods and materials	W	W	W	W
Nonferrous alloys 2/	W	W	W	W
Other alloys	W 3/	--	--	--
Chemical and ceramic uses:				
Catalysts	W	W	W	W
Other 4/	W	W	W	W
Miscellaneous and unspecified	427,000	90,600 r/	110,000	207,000
Total consumption	4,500,000	398,000 r/	408,000	1,940,000

p/ Preliminary. r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Miscellaneous and unspecified."

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes magnetic alloys, except for 1996.

3/ Magnetic alloys was included in this category for 1996.

4/ Includes pigments.



TABLE 3  
U. S. EXPORTS OF ALUMINUM-VANADIUM MASTER ALLOY, FERROVANADIUM AND  
VANADIUM PENTOXIDE (ANHYDRIDE) IN APRIL 1997 1/

(Kilograms, vanadium content unless otherwise specified)

Material and country	Quantity	Value	Year to date	
			Quantity	Value
Aluminum-vanadium master alloy: 2/				
Austria	--	--	13,800	\$161,000
Canada	3,040	\$39,600	24,300	306,000
China	--	--	15,000	265,000
Germany	8,190	111,000	13,200	209,000
Japan	--	--	1,050	13,700
Mexico	11,200	146,000	108,000	1,400,000
United Kingdom	--	--	54,100	933,000
Total	22,500	296,000	229,000	3,280,000
Ferrovanadium:				
Canada	32,000	720,000	95,800	2,140,000
Mexico	11,500	256,000	53,400	974,000
Total	43,600	976,000	149,000	3,110,000
Vanadium pentoxide (anhydride): 3/				
Austria	5,420	51,500	42,800	212,000
Belgium	42,100	425,000	107,000	954,000
Brazil	17,200	127,000	17,900	133,000
France	--	--	16,100	210,000
Germany	--	--	16,700	117,000
Italy	--	--	42,000	322,000
Korea, Republic of	--	--	32,400	256,000
Total	64,800	603,000	275,000	2,200,000

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Gross weight.

3/ May include catalysts containing vanadium pentoxide.

Source: Bureau of the Census

TABLE 4  
U. S. EXPORTS OF OXIDES AND HYDROXIDES OF VANADIUM AND VANADIUM METAL  
IN APRIL 1997 1/

(Kilograms, vanadium content unless otherwise specified)

Material and country	Quantity	Value	Year to date	
			Quantity	Value
Other oxides and hydroxides of vanadium:				
Argentina	916	\$13,300	916	\$13,300
Canada	28,800	258,000	86,100	781,000
Colombia	5,000	34,300	5,700	44,800
Czech Republic	3,510	54,900	3,510	54,900
France	3,280	37,100	3,730	41,100
Germany	--	--	11,500	102,000
Indonesia	--	--	4,000	51,900
Israel	--	--	1,260	11,200
Japan	--	--	13,700	122,000
Korea, Republic of	--	--	788	7,010
Mexico	--	--	2,820	25,100
United Kingdom	--	--	1,560	6,040
South Africa	--	--	40,400	405,000
Total	41,500	398,000	176,000	1,670,000
Vanadium metal, including waste and scrap: 2/				
Canada	--	--	650	17,700
Japan	--	--	30	4,160
United Kingdom	251	12,900	831	29,300
Total	251	12,900	1,510	51,100

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Gross weight.

Source: Bureau of the Census.



TABLE 5  
U.S. IMPORTS FOR CONSUMPTION OF ALUMINUM-VANADIUM MASTER ALLOY, FERROVANADIUM AND  
VANADIUM PENTOXIDE (ANHYDRIDE) IN APRIL 1997 1/

(Kilograms, vanadium content unless otherwise specified)

Material and country	Quantity	Value	Year to date	
			Quantity	Value
Aluminum-vanadium master alloy: 2/	--	--	--	--
Ferrovanadium:				
Austria	--	--	13,700	\$224,000
Canada	83,600	\$1,480,000	327,000	5,450,000
China	12,800	217,000	142,000	2,140,000
Czech Republic	32,100	465,000	63,800	947,000
Germany	--	--	3,700	72,300
Japan	240	12,300	465	26,100
South Africa	--	--	100,000	1,620,000
Total	129,000	2,180,000	651,000	10,500,000
Vanadium pentoxide (anhydride): 3/				
South Africa	68,000	761,000	228,000	2,630,000

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Gross weight.

3/ May include catalysts containing vanadium pentoxide.

Source: Bureau of the Census.

TABLE 6  
U.S. IMPORTS FOR CONSUMPTION OF OTHER OXIDES AND HYDROXIDES OF VANADIUM AND VANADIUM  
METAL, INCLUDING WASTE AND SCRAP IN APRIL 1997 1/

(Kilograms, vanadium content unless otherwise specified)

Material and country	Quantity	Value	Year to date	
			Quantity	Value
Other oxides and hydroxides of vanadium:				
South Africa	12,100	\$191,000	89,000	\$1,320,000
Vanadium metal, including waste and scrap: 2/				
Germany	247,000	172,000	251,000	225,000
Korea, Republic of	4	3,000	4	3,000
Russia	1,250	57,700	11,100	209,000
United Kingdom	--	--	1	1,530
Total	249,000	232,000	262,000	438,000

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Gross weight.

Source: Bureau of the Census.

TABLE 7  
U.S. IMPORTS FOR CONSUMPTION OF VANADIUM-BEARING ASH, SLAG AND RESIDUES IN APRIL 1997 1/

(Kilograms, vanadium pentoxide content)

Material and country	Quantity	Value	Year to date 2/	
			Quantity	Value
Ash and residues:				
Canada	--	--	17,800	\$9,730
Mexico	68,800	\$184,000	218,000	518,000
Netherlands Antilles	262	2,110	262	2,110
Total	69,100	186,000	236,000	530,000
Ash and residues (not from the manufacture of iron and steel):				
Canada	80,500	23,100	569,000	133,000
Slag, from the manufacture of iron and steel:				
South Africa	291,000	1,140,000	578,000	2,280,000
Other residues: (Not advanced in value)				
Canada	--	--	7,410	6,530

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ May include revisions to previous month's data.

Source: Bureau of the Census.



TABLE 8  
U.S. IMPORTS FOR CONSUMPTION OF MISCELLANEOUS VANADIUM CHEMICALS IN APRIL 1997 1/

(Kilograms, vanadium content)

Material and country	Quantity	Value	Year to date	
			Quantity	Value
Sulfates:	--	--	--	--
Vanadates:				
Germany	--	--	11,000	\$151,000
South Africa	23,500	\$161,000	45,900	320,000
Total	23,500	161,000	56,900	471,000
Hydrides and nitrides:	--	--	--	--

1/ Data are rounded to three significant digits; may not add to totals shown.

Source: Bureau of the Census.